



GRAVES' DISEASE & THYROID FOUNDATION

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Graves' Eye Disease – Treating the Inflamed Phase by Clinton D. McCord, MD, FACS

Graves' disease is a condition affecting the eyelids and tissue behind the eye in people who have had a thyroid disorder. The name Graves is the name of a man who described the condition years ago. In the most common situation, a person that is hyperthyroid develops swelling and build up of tissue behind the eye together with retraction of the eyelids. The condition can, however, occur without a person being hyperthyroid. Paradoxically, in some cases the eye condition can actually worsen after the hyperthyroidism is treated. The exact mechanism that causes the buildup of tissue behind the eye along with scarring and the retraction of the eyelids is not known. It is felt to be a substance by-product of some abnormal thyroid activity that is carried through the bloodstream to the orbit or may be carried through the lymph system in the neck to the orbit. The buildup of tissue behind the eye may be very severe, infiltrating the eye muscles causing severe

enlargement of the eye muscles (see below) and compression of the optic nerve, threatening vision. It may be less severe when the eye is simply thrust forward, although this does cause much discomfort, corneal exposure and disfigurement. The condition may be milder when there is not a great deal of eye prominence but simply puffiness and retraction of the eyelids. All of these problems are distressing to the person who has them, not only from the standpoint of disfigurement, but from the standpoint of discomfort and the fact that their eyesight and vision are placed at risk. In many cases, the infiltration of this tissue into the muscles that move the eye (extraocular muscles) causes scarring within the muscles which can produce double vision which may become permanent.

Treatment of the Problem of Graves' Disease

There are two situations that the patient may find herself or himself in with the onset of

Graves' disease. When the changes first begin with inflammation and swelling, the person is considered to be in the "acute" inflammatory phase (hot phase) when swelling affects the tissue behind the eye. All efforts are made at that time to suppress the inflammation with non-surgical means, cortisone, anti-inflammatory agents, and sometimes irradiation. Surgery is to be avoided in this situation unless it is an emergency and when all else has failed. Any results obtained by surgery during this period of time can be lost if the inflammation is still continuing. After the inflammation subsides and stops and the process is no longer active a person may be left with residual changes that will stay the same. This is the "healed" phase, or the inactive phase, or the (cold phase). It is in this situation that rehabilitative surgery, if needed, should be undertaken. Once the person reaches the inactive or cold phase, the antiinflammatory treatments should not be used because

they do not do any good. Unfortunately, we have no blood test or any specific test to indicate when one has passed from the hot phase to the cold phase. In most people, it takes approximately six months or longer for the active phase to subside. There are some things that can prolong the active phase. People who actually become hyperthyroid at the time of the development of these changes in the orbit and eyelids may improve somewhat when their hyperthyroidism is controlled. Paradoxically, with permanent treatment such as radioactive iodine or surgery, sometimes the eye changes can be made worse or the "hot phase" prolonged. Why this happens is not known.

Treatment of the Active Inflamed Phase

1. Cortisone

To combat the inflammatory changes in the tissue, the first line of defense is cortisone. In cases of orbital involvement, either mild or severe, which are just developing, high dosages of cortisone (doses that would suppress an immunologic reaction) are used and many people will respond to the cortisone. This is used

commonly in people who have progressive inflammatory changes, particularly if there is some visually threatening aspect, either doubling of vision or dimming of vision, from compression of the optic nerve from the swollen muscles behind the eye. It has been shown that some people respond (responders) and some people do not respond (non-responders). One cannot determine ahead of time how well someone will respond to cortisone. If a person is going to respond to these high doses they will do so within two weeks, and if no response is detectable in two weeks then the cortisone must be discontinued because of the known side effects to cortisone. If a response is obtained, then the cortisone will be reduced in dosage until the least amount of cortisone that can control the condition can be used.

2. Radiotherapy

Some people who do not respond to or cannot tolerate cortisone will still have progressive inflammatory changes. Xray treatment to the orbital tissue can reduce the inflammation and swelling dramatically. A doctor at Stanford introduced radiotherapy to the orbit for Graves' disease 15 years ago. It has gained popularity and

was used to treat Mrs. Bush (the ex- President's wife) for this problem. The x-ray type used is (high energy, linear accelerator) cancer strength but it is focused only on the affected tissues so that it will prevent any general body effects and reduce any eye side effects. People who have diabetes or poor blood circulation are more at risk for eye side effects with this treatment. Usually cortisone is used in conjunction with this treatment for a while.

3. Orbital decompression

Despite the effectiveness of cortisone, radiotherapy, or a combination of both, there are some people who continue to have threatened compression of the optic nerve with visual loss. In these people, the last resort to salvage vision is the orbital decompression, which consists of enlarging the bony socket by opening up some of the sinuses behind the eye, relieving the pressure on the optic nerve. This procedure is more commonly used to allow the eye to settle back in cases of protrusion, but a special variation of this procedure is used to try to prevent blindness in some unusually severe cases.

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